

SHORT REPORT

Six minute walk distance is greater when performed in a group than alone

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Objective: To investigate whether the distance covered in the six minute walk test was affected by walking with a group of others in comparison with performing the test alone.

Methods: Eight healthy men (mean (SD) age 21.0 (0.9) years) and eight healthy women (mean (SD) age 20.8 (2.0) years) performed in random order two six minute walk tests either alone or in a group of four on two separate occasions one week apart.

Results: Distance covered increased significantly from a mean of 653 (61) m in the individual male tests to 735 (79) m in the male group tests ($p < 0.05$), and 616 (75) m in the individual female tests to 701 (54) m in the female group tests ($p < 0.01$). The men increased the distance walked in six minutes by 12.5% and the women by 13.7% when they performed the test as a group.

Conclusion: Performing the six minute walk test in a group facilitates its execution.

The six minute walk test (6-MWT) is a submaximal aerobic test used to evaluate functional exercise power in sedentary populations.¹ It has been shown to be a valid measure of cardiorespiratory fitness and to possess high test-retest reliability.^{1,2} It is most often performed by a subject alone in clinical situations. However, in field projects with large participant numbers, it is often impractical to perform the test on subjects alone, because of time and financial constraints. Consequently, because of its ease of administration, the 6-MWT has been adapted by researchers to test the functional status of several participants simultaneously.

Social facilitation studies have shown that humans generally perform better in physical tests when they are performed in the company of others.³⁻⁶ Therefore it is prudent to acknowledge the impact of social facilitation on the result achieved to accurately gauge true functional status, or the effectiveness of the intervention programme. However, the magnitude of the effect of exercising on the 6-MWT distance in a group compared with walking alone is not known. To address this, we investigated the effects of social facilitation on distance covered in the 6-MWT with healthy subjects.

METHODS

Design

The study was a partially randomised crossover trial in which participants performed two exercise tests over a seven day period.

Participants

Eight male and female university students (mean (SD) age 21 (2) years, mass 71.5 (10.1) kg, height 1.74 (0.82) m) volunteered for this study. After being informed of any risks associated with participation, participants gave their written consent in accordance with the Waikato Institute of Technology human ethics committee rules. All subjects were healthy and considered to be physically active, as all participated in recreational club level sport.

Exercise tests

All subjects had previously participated in fitness testing and were familiarised with the procedures before the start of the study. They reported to a temperature controlled stadium (20°C) on two occasions to perform a 6-MWT either individually or in a group. On the first test occasion, eight participants (four male, four female) performed the test individually, while the remaining eight performed the test in sex matched groups of four. On the second occasion, participants completed the alternative test procedure not performed on the first occasion. The 6-MWTs were performed on a 20 m course. Participants were instructed to walk the maximal amount of laps in the six minute period. Those performing the test as a group began the test together but were not obliged to stay together and completed the test at their preferred pace. Standard encouragement from a written sheet was given to each subject at one minute intervals throughout both exercise tests. A stopwatch was used to record the elapsed time, and the distance walked was measured to the nearest metre using a tape.

Statistical analysis

Simple group statistics are given as means \pm between-participant standard deviations. Mean effects and their 95% confidence limits were estimated with an Excel spreadsheet by the paired *t* statistic computed for change scores between

Table 1 Changes in distance walked individually and in a group

	Distance walked (m)		Effect size	Chances (% and qualitative) of substantial improvement
	Individual	Group		
Female	616 (74)	702 (54)**	1.34	99.9; almost certain
Male	654 (61)	736 (79)*	1.17	96.7; very likely

Data are mean (SD).

* $p < 0.05$, ** $p < 0.01$, significant difference between individual and group mean distance achieved.

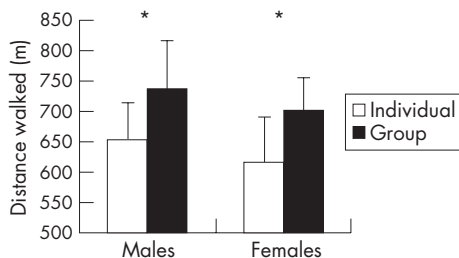


Figure 1 Mean distance walked in six minutes by male and female subjects individually or as a group. * $p < 0.05$, significant difference between individual and group mean distance achieved.

individual and group tests. The error of measurement was calculated by the standard deviation of the change score between the two treatments. It was expressed as a coefficient of variation and was estimated with the spreadsheet to be 7.1%. Statistical significance was established at $p < 0.05$.

RESULTS

Walking in a group resulted in significant increases in the distance achieved in the 6-MWT by both the female and male groups (fig 1). The effect sizes of 1.35 and 1.17 respectively showed that there was a 99.9% chance that a beneficial effect would almost certainly be achieved on distance walked by female subjects walking in a group, and a 96.7% chance that a beneficial effect would very likely be achieved for male subjects (table 1).

DISCUSSION

The primary aim of this study was to examine the effect of social facilitation on the distance walked on a 6-MWT in healthy young male and female adults. The major finding was that participants walked significantly further when in a group compared with individually. Distance covered by the male and female groups increased significantly from a mean of 653 (61) m to 735 (79) m and 616 (75) m to 701 (54) m respectively. Given the potential for people to perform better in the presence of others, these data suggest that social facilitation does indeed improve performance in healthy young adults, and this is consistent with findings from previous studies. Triplett⁷ first investigated this occurrence when he noticed cyclist's times were faster when they raced as a group rather than as individuals. Triplett's theory of dynamogenics states that the existence of another person racing provokes a competitive instinct, which in turn increases one's arousal and inspires increases in effort and subsequent power output and/or speed.⁷ Research by Zajonc⁶ supported this theory, revealing evidence of social facilitation, as participants who believed that they were being supervised did 34% better than unsupervised students.

Baron⁸ proposed that the presence of others can impact on arousal, as the alertness of others may be distracting, creating conflict between concentrating on the task at hand or on the presence of others. It would appear that the performance outcome of being in a group situation depends on three factors: (a) whether or not the individual feels that he/she is being evaluated or judged³; (b) whether people focus on the task at hand or become distracted by the presence of others⁴; (c) the mere presence of someone, whereby there is no

What is already known on this topic

- The effects of social facilitation on performance have been investigated in cyclists
- Cycling performance is increased if the cyclist competes with a group of others compared with alone

What this study adds

- Social facilitation can increase the distance walked in six minutes by 13–14%.

evaluation apprehension or distraction is experienced by the participant, allowing social facilitation to occur.

In conclusion, this study shows that the distance walked in a 6-MWT was greater when it was performed as a group than individually. One of the implications that can be drawn from the study is that psychological factors have an effect on the test. This test is often used for clinical purposes to gauge improvement in cardiovascular health. Therefore it is important for clinicians to be aware of the confounding effect of the social facilitation. Furthermore, it would be important for exercise physiologists to take this finding into account when prescribing exercise for groups so as to not place at risk people in a higher standard group. Future research should be directed at investigating the number of people required to induce a social facilitation effect.

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